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Awareness and knowledge of final year health science students on Occupational Therapy in a public university in Ghana

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Abstract

Background: Occupational therapists play a major role in the healthcare team in the provision of holistic care to patients. Successful healthcare depends on collaboration and understanding among health professionals and recognition of each health professional's role in a team.

Objective: The study aimed to determine the awareness and knowledge of final-year health sciences students of the University of Ghana on occupational therapy (OT).

Methods: A cross-sectional study was employed by means of a questionnaire with final year students in the Medicine, Nursing and Allied Health Professional programmes (physiotherapy, dietetics, radiography, and medical laboratory sciences) of the University of Ghana. Participants were randomly selected and requested to complete a questionnaire. Data was analysed using IBM SPSS Statistics, Version 23.0.

Results: The results showed an overall OT awareness of 94.66% (n = 195/206). About 35.0% (n = 69/206) of participant learned about OT as a health profession through other means rather than their academic curriculum. Collectively, participants demonstrated an average actual knowledge on OT services of 14.43 ± 3.17 . The results also showed that, the importance participants accorded OT profession in the healthcare team did not depend on their knowledge on OT scope of practice ($r_s = 0.162, p > 0.05$).

Conclusion: Actions should be channelled towards enabling health science students to learn about OT and other health professions through their university curriculum. Furthermore, OT students should endeavour to sensitise fellow health science students on the unique roles and responsibilities of the OT profession in the healthcare team.

Keywords: Interprofessional collaboration, occupational therapy, teamwork, health sciences students, Ghana

INTRODUCTION

Caring for patients has become very complex to an extent that to achieve success, not only the services of various health professionals who are specialists in their field are needed but also professionals who work together in synchronization [1]. Koch et al. [2] reported that, successful healthcare depends on well-organized collaboration and understanding among health professionals and recognition of each health professional's role in the team. Koch et al. further emphasized that, for each discipline to understand and recognize the role of each

other in the multidisciplinary team, members should have adequate knowledge of each other's roles. The need for health professionals to have adequate knowledge on the roles of other professionals of the multidisciplinary team is strongly emphasized in the literature [3-6]. Hall and Weaver [1] stated that even though health professionals learn about their own role during training, they demonstrate poor understanding of the role of other health professionals when working in an interprofessional healthcare team. Inadequate knowledge of each other's scope of practice can have an adverse consequence on the success of the interprofessional healthcare team by creating what Soklaridis et al. [7] termed "interprofessional tension". This tension is a contributing factor to poor interprofessional

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communication and work dissatisfaction which negatively affects patients care [8]. Research confirms that, health professionals' poor knowledge of the roles of other health professionals can be attributed to the inadequacies of their education and training curriculum [5,9,10]. Romanow [9] reported that, the problem of health professionals' inadequate knowledge of the role of other health professionals stems from poor interprofessional education which dates back to their professional training and education era.

Romanow [9] further emphasized that the professional education and training of health professionals should prepare them for working together in a team environment. Nisbet et al. [3] reported that, an interprofessional learning programme caused a significant increase among medical, nursing, and allied health professional students' understanding of each other's roles, which positively impacted on their teamwork ability. The occupational therapist (OT) plays a significant role as a member of the multidisciplinary team by equipping a person with disability to regain, develop or retain their occupational skills and roles in order for them to maintain their personal wellbeing through engagement in purposeful activities and environmental adaptation [11].

Jamnadas et al. [10] conducted a study among nursing and physician's assistant students to determine whether they get enough knowledge about OT roles in their professional curriculum. Jamnadas et al. [10] found out that most nursing and physician's assistant students had little or no knowledge about the role of OT. Insalaco et al. [5] in their research study emphasized the need for students to have knowledge not only on roles but also, the specialities of the other professionals that they will be working with [5]. Such knowledge is vital for preventing role confusion and stereotyping that exists as students enter the practice world. Some studies have identified that some health professional students typically perceive the role of occupational therapists to be "helpers" [12,13]. Meny and Hayat [14] also stated that, some health professional students perceived that occupational therapists' help their clients to find jobs.

Misconceptions of these potentials could have adverse effects on holistic and optimal healthcare which health professionals strive to provide their clients with [15]. Clients who need OT services may be deprived of it due to healthcare professionals lack of knowledge about OT [6,16,17]. In a Nigerian cross-sectional study among final year medical and health sciences students, most participants associated services that are not within the domain of concern of OT to the profession [18]. This study sought to determine the awareness and level of knowledge of final year medical, nursing and allied health students about OT in the University of Ghana. Since these students were in their final year of training, bidding to become health professionals, their knowledge about OT roles could influence the collaboration and overall success of the multidisciplinary team they will be working with.

MATERIALS AND METHODS

Participants and settings

Final year undergraduate students from the University of Ghana School of Medicine and Dentistry (SMD), School of Nursing (SoN), and the School of Biomedical and Allied Health Sciences (SBAHS) of the College of Health Sciences were invited to participate in this cross-sectional survey. The SBAHS students consisted of physiotherapy, dietetics, radiography, and medical laboratory sciences. Occupational Therapy students were excluded from this study. A random sampling technique was used to recruit participants. Data were collected at the Korle-Bu and the Legon campuses of the University of Ghana where the final year medicine and SBAHS students as well as Nursing students were recruited, respectively. Out of a 450 population of final years health sciences students (SMD, $n = 225$; SBAHS, $n = 175$; and SoN, $n = 50$), a representative sample of 212 participants (SMD, $n = 106$; SBAHS, $n = 82$; and SoN, $n = 24$) were recruited for this study. Sample size was calculated using Yamane's formula [19] for sample size calculation, with population size of 450 and allowable margin of error of 0.05.

Instrument and scoring

A survey questionnaire on awareness and knowledge on OT by Jamnadas et al. [10] was adapted and used as survey instrument for this study. Modifications made included changes such as elimination of "Present educational level", "prior education" and "current curriculum of enrolment" in the demographic information in section one. Also, all open-ended questions that measured perceived knowledge about OT were changed to close ended questions using a 5-point Likert scale. A pilot test among 10 students from SMD, 12 from SBAHS, and 5 from SoN who were all final year students was used to test the reliability of the questionnaire. These students were not included in the actual study. Consequently, ambiguous and redundant items were reframed or removed as appropriate. Reliability test of the questionnaire showed an acceptable internal validity with Cronbach's alpha value of 0.71.

The questionnaire was divided into three sections. Section one assessed personal information which included age, sex and programme of study. Section two measured the awareness of OT, the sources through which the participants first heard of the term "Occupational Therapy", then on a Likert scale of 1 to 5 with 1 being strongly disagree and 5 being strongly agree, the participants were to determine how well they knew about OT, how well they could explain OT to other professionals and their perception of the importance of OT in the multidisciplinary team. Each of these three statements has a minimum possible score of one and maximum possible score of five which altogether, measured the perceived knowledge of the participants on OT. Section three of the questionnaire measured the participant's actual knowledge about OT. Participants were to select as many as applied, services they knew to be within the scope of the OT profession from a list of 27 mixed responsibilities of occupational therapists,

physiotherapists, physicians, and nurses. The actual knowledge score was determined by summation of the participants' correct responses. A minimum score of zero and a maximum of 27 could be obtained. A score < 14 was considered no or poor knowledge on OT, score 14 to 16 was considered average, scores between 16 and 19 was considered good knowledge and more than 19 was considered excellent knowledge.

Procedures

The study questionnaire with participant's information sheet was distributed to a convenient sample of 212 participants after explaining the purpose verbally. The participant information sheet contained information explaining the research including reasons for conducting the study, goals of the researchers, voluntary participation, participants' anonymity, and confidentiality as well as the right to withdraw from the study at any time. Participants were reached in their lecture theatres and hostels. Participants provided signed consent to participate in the study.

Statistical analysis

Data analysis was performed using IBM SPSS Statistics for Windows, Version 23.0. Descriptive statistics was used to present the participants' information. Chi-square test (χ^2), Spearman's rho Correlation analysis, two sampled t-test, one-way analysis of variance (ANOVA) and Tukey's post-hoc comparison were used in the inferential statistics. The level of significance was established at $p < 0.05$.

RESULTS

Demographic characteristics

In total, 209 questionnaires were returned out of 212 that were distributed, yielding a response rate of 98.58% (209/212). Three copies of the returned questionnaires had relevant portions unanswered or inappropriately filled so they were rendered invalid. In all, two-hundred and six valid questions were included in the analysis. Out of the 206 participants, 91 (44.17%) were medicine students, 26 (12.62%) were nursing students, 22 (10.68%) were physiotherapy students, 21 (10.19%) were dietetics students, 22 (10.68%) were radiography students, and 24 (11.65%) were medical laboratory sciences students. Majority (61.17%, $n = 126$) of the participants were males. One-hundred and forty-three (69.42%) were between 23 - 26 yr. and 35 (16.99%) were between 19 - 22 yr.

The demographic characteristics of the participants as well as the frequency distribution of the participants' awareness about occupational therapy is presented in Table 1. The results showed an overall occupational therapy awareness of 94.66% ($n = 195/206$). One-hundred percent awareness was recorded among final-year students of all professions except medicine which recorded 87.91% ($n = 80/91$) awareness. The results also showed that participants awareness about occupational therapy was significantly associated with participants' age groups ($\chi^2 = 24.81$; $p < 0.001$) and programme of study ($\chi^2 = 14.67$; $p = 0.012$). The majority (66.50%, $n = 137/206$) of the participants got to

Table 1: Demographic characteristics and frequency distribution of participants awareness about occupational therapy

| Variables | Awareness about Occupational therapy | | | χ^2 | p value |
|--------------------|--------------------------------------|-------------|--------------|----------|-----------|
| | Total n (%) | No n (%) | Yes n (%) | | |
| Gender | | | | 0.03 | 0.86 |
| Male | 126(61.2) | 7(5.6) | 119(94.4) | | |
| Female | 80(38.8) | 4(5) | 76(95) | | |
| Age range in years | | | | 24.81 | 0.00* |
| 19 - 22 | 35(17) | 0(0) | 35(100) | | |
| 23 - 26 | 143(69.4) | 5(3.5) | 138(96.5) | | |
| 27 - 30 | 24(11.7) | 4(16.7) | 20(83.3) | | |
| 31 - 34 | 4(1.9) | 2(50) | 2(50) | | |
| Programmes | | | | 14.67 | 0.012* |
| Medicine | 91(44.2) | 11(12.1) | 80(87.9) | | |
| Nursing | 26(12.6) | 0(0) | 26(100) | | |
| Physiotherapy | 22(10.7) | 0(0) | 22(100) | | |
| Dietetics | 21(10.2) | 0(0) | 21(100) | | |
| Radiography | 22(10.7) | 0(0) | 22(100) | | |
| MedLab | 24(11.7) | 0(0) | 24(100) | | |

χ^2 , Chi-square; MedLab, Medical Laboratory Sciences

know about occupational therapy through the university curriculum, 21.84% ($n = 45/206$) through the internet, 12.62% ($n = 26/206$) from personal reading and 35/206 (16.99%) from a health professional.

Participants perceived knowledge about OT

The mean Likert score for overall students' perception of OT was 3.54 ± 0.75 . Participants' perceived knowledge about OT is presented in Table 2. The mean Likert score for

Table 2: Participants' perceived knowledge about occupational therapy

| Discipline | I think I know OT well enough | OT is a vital profession in the healthcare team | I have enough knowledge to explain OT to others |
|---------------|-------------------------------|---|---|
| Physiotherapy | 4.00 ± 0.62 | 4.59 ± 0.85 | 3.82 ± 1.10 |
| Radiography | 2.73 ± 0.88 | 4.00 ± 1.07 | 2.73 ± 0.83 |
| MedLab | 3.21 ± 0.93 | 4.58 ± 0.58 | 2.87 ± 1.04 |
| Medicine | 3.16 ± 0.98 | 4.23 ± 0.73 | 2.99 ± 0.96 |
| Nursing | 3.62 ± 0.98 | 3.88 ± 1.28 | 3.19 ± 0.98 |
| Dietetics | 3.29 ± 0.90 | 4.52 ± 0.60 | 2.95 ± 0.67 |
| Mean Total | 3.29 ± 0.97 | 4.27 ± 0.88 | 3.06 ± 0.98 |

OT, occupational therapy; MedLab, Medical Laboratory Sciences

Table 3: Participants' actual knowledge about occupational therapy service

| Variables | Overall Knowledge on Occupational Therapy | | | |
|----------------|---|------|--------|---------|
| | Mean | SD | tests | p value |
| Gender | | | t=1.73 | 0.903 |
| Male | 14.75 | 3.14 | | |
| Female | 13.93 | 3.17 | | |
| Age range | | | F=1.03 | 0.428 |
| 19-22 | 15.03 | 3.25 | | |
| 23-26 | 14.27 | 3.20 | | |
| 27-30 | 14.35 | 2.89 | | |
| 31-34 | 16.50 | 2.12 | | |
| Programmes | | | F=5.03 | < 0.01* |
| Medicine | 14.34 | 2.94 | | |
| Nursing | 12.52 | 2.99 | | |
| Physiotherapy | 16.59 | 2.89 | | |
| Dietetics | 15.57 | 2.48 | | |
| Radiography | 14.25 | 3.95 | | |
| MedLab | 13.91 | 2.97 | | |
| Mean knowledge | 14.43 | 3.17 | | |

SD, standard deviation; MedLab, Medical Laboratory Sciences

"I think I know OT well enough" was 3.29 ± 0.97 and "I think I have enough knowledge to explain OT to other professionals" was 3.06 ± 0.98 . When asked whether they think OT is a vital profession in the healthcare team, physiotherapy students recorded the highest mean Likert of 4.59 ± 0.85 and nursing recorded the lowest of 3.88 ± 1.28 .

Participants actual knowledge about OT services

Participants' actual knowledge about OT was calculated by summation of participants' correct responses when asked to select OT services from a list of mixed services of physiotherapists, occupational therapists, nurses, and physicians. The overall students' knowledge of OT services was 14.43 ± 3.17 . The distribution of participants' actual knowledge about OT is presented in Table 3. Final year physiotherapy students showed the highest level of knowledge on OT services (16.59 ± 2.89) compared to final year nursing students who showed the lowest (12.52 ± 2.99). Participants' actual knowledge about OT was significantly associated with their programme of study ($F = 5.03$; $p < 0.05$) but not with participants' gender ($t = 1.73$; $p = 0.903$) and age range ($F = 1.03$; $p = 0.428$) (Table 3). Table 4 shows the frequencies of participants' responses to OT services.

The OT services that recorded the highest correct response were "Activities of Daily Living" (76.40%, $n = 149/195$), "Increasing the quality of Life for Disabled People" (63.10%, $n = 123 / 195$), and "Range of Motion" (60.0%, $n = 117/195$). Other frequently identified OT services were "Ergonomics" (57.40%, $n = 112/195$), "Home Safety Evaluation" (54.87%, $n = 107/195$), and "Hand Therapy" (57.80%, $n = 113/195$). Other less frequently identified OT services were "Hippotherapy" (21.57%, $n = 42/195$), "Work Hardening" (25.1%, $n = 41/195$), "Hydrotherapy" (29.23%, $n = 57/195$) and "Interest Checklists" (30.25%, $n = 59/195$). Interestingly, Services not associated with OT but were chosen by the respondents as part of OT services included "Drug Prescription" (21.03%, $n = 41/195$), "Respiration" (26.67, $n = 52/195$), "Ultrasound" (12.82%, $n = 25/195$) and "phlebotomy" (11.79%, $n = 23/195$).

When analysing the responses of the participants to see whether those who perceived themselves to be knowledgeable about OT were indeed knowledgeable, the correlation between total perceived knowledge and the total actual knowledge about OT was ($r_s = 0.176$, $p < 0.05$) which indicated a weak linear correlation implying that, perception that you are knowledgeable about OT might not mean you are indeed knowledgeable. The authors also analysed the responses to see the perception of the OT profession as vital in the healthcare team depends on knowledge on OT. Correlation between scores for "OT is a vital professional in the healthcare team" and participants actual knowledge on OT was ($r_s = 0.162$, $p > 0.05$) which indicated no correlation. This implies that, the importance accorded OT profession in the healthcare team does not depend on how well participants knew about OT services.

Table 4: Frequencies of students' responses to OT services

| Occupational Therapy Domain of Concern | Ticked n (%) | Not ticked n (%) |
|--|--------------|------------------|
| Activities of Daily Living | 149 (76.41%) | 57 (33.60%) |
| Range of Motion | 117 (60.0%) | 89 (40.0%) |
| Ergonomics | 112 (57.44%) | 94 (42.56%) |
| Massage | 67 (34.36%) | 139 (65.64%) |
| Thermotherapy | 62 (31.79%) | 114 (68.21%) |
| Manual Muscle Testing | 75 (38.46%) | 131 (61.54%) |
| Sensory Integration | 79 (40.51%) | 127 (59.49%) |
| Hand Therapy | 101 (51.79%) | 105 (48.21%) |
| Paediatric Development | 79 (40.51%) | 127 (59.49%) |
| Leisure Activities | 98 (50.26%) | 108 (49.74%) |
| Drug Prescription | 41 (21.03%) | 165 (78.97%) |
| Gait Training | 92 (47.18%) | 114 (52.82%) |
| Splinting and Orthotics | 65 (33.33%) | 141 (66.67%) |
| Respiration | 52 (26.67%) | 154 (73.33%) |
| Positioning | 84 (43.08%) | 122 (56.92%) |
| Home Safety Evaluation | 107 (54.87%) | 99 (45.13%) |
| Increasing Quality of Living for Disabled People | 123 (63.08%) | 83 (36.92%) |
| Interest Checklists | 59 (30.26%) | 147 (69.74%) |
| Craft Activities | 90 (46.15%) | 116 (53.85%) |
| Physical Agent Modalities | 58 (29.74%) | 148 (70.26%) |
| Hippotherapy | 42 (21.54%) | 164 (78.46%) |
| Hydrotherapy | 57 (29.2%) | 149 (70.77%) |
| Traction | 40 (20.51%) | 166 (79.49%) |
| Ultrasound | 25 (12.82%) | 181 (87.18%) |
| Phlebotomy | 23 (11.79%) | 183 (88.21%) |
| Work Hardening | 49 (25.13%) | 157 (74.87%) |
| Electrotherapy | 41 (21.03%) | 165 (78.97%) |

OT, occupational therapy; n, number

DISCUSSION

The study was conducted to explore the knowledge of final year students offering Medicine, Nursing, Medical Laboratory Sciences, Dietetics, Physiotherapy and Radiography on OT. We also compared the knowledge on OT among the various professions to identify specific target professions which may need more sensitisation on the roles of the occupational therapist in the healthcare team. An important finding of the study relates to the fact that the total mean knowledge of all the six professions on OT indicated an average level of knowledge. Though this finding is higher than was reported in some studies [10, 11,14,16,18,20] done worldwide which found a poor level of knowledge among health science students, it is of concern however that the score is near poor knowledge (13.5 and below). This finding has the potential to impact negatively on interprofessional collaboration with

occupational therapists when they enter practice, ultimately impacting health professionals' ability to meet the needs of patients [1,7,14,17]. This is of particular concern because OT is new and available as undergraduate programme in Ghana and West Africa. Our findings further indicated that, most of the health sciences students had heard about OT although (5.34%, n = 11/206) reported they were not aware that OT was a health profession. All participants in the SBAHS (Medical Laboratory Sciences, Radiography, Dietetics and Physiotherapy) and Nursing professions showed a 100% awareness of the existence of OT profession in Ghana. This finding is consistent with Hashem et al. [21] who reported a high OT awareness among allied health sciences and nursing students. This is likely because participants from the SBAHS and SoN have once, or several times had joint courses and lectures with OT students [21].

As mentioned earlier, it became obvious from the findings that final year nursing students were fully aware of OT as a health profession but had poor knowledge of the responsibilities of the occupational therapists. As much as their high level of awareness is beneficial, their lack of knowledge on the scope of practice of OT may have detrimental effect on interprofessional collaboration and communication which may lead to inability to meet the holistic needs of patients [22,23]. This was however not the case in a study conducted by Alotaibi et al. [17] who attributed the high level of knowledge of OT among nurses to their educational curriculum which provided more focus on OT. Similarly, medical students showed a near poor level of knowledge on OT scope of practice. This finding corroborates other studies which found a lack of knowledge among medical students [14,16]. A direct relationship between level of knowledge on OT and referral behaviour has been established in the literature [6,16-18]. This implies that medical students' low level of knowledge on OT may potentially limit the number of appropriate referrals made to the occupational therapists [6,16-18]. As a result, there may be denial of potential patients who may need the services of an occupational therapist, because of the physician's lack of knowledge on OT services.

Meny and Hayat [14] found out that most medical doctors do not refer patients to OT despite the presence of OT in the hospital where they work in Saudi Arabia, due to their lack of knowledge on OT services. The study also showed that there was a significant difference in the level of knowledge about OT across professions of students. Final year physiotherapy students were more likely to know more about OT services than any other profession because physiotherapy students have several joint courses with OT students. This finding resonates with what has been reported in the literature [14,21]. Hashem et al. [21] attributed the comparatively higher knowledge for physiotherapy students in their study to OT students and physiotherapy students having several shared classes together and treating the same patient during clinical placements. Majority of the participants in all professions indicated that OT is important in the healthcare team. This

finding is congruent with previous research literature [14,21] in which healthcare professionals acknowledged that OT improves the quality of life of patients and their families. It is worthy to note that final year medical student and nursing students acknowledged the fact that their knowledge about OT is limited. This finding corroborates Mani and Velan's [16] study in which participants acknowledged their lack of knowledge on OT scope of practice. Even physiotherapy students in our study scored a mean of 3.82 ± 1.09 in response to "whether they can explain OT to other Health Professionals". This was relatively high among the other participants. However, the value was below expectations considering that physiotherapists hold several common classes with the OT students and would be working collaboratively with occupational therapists.

Some participants selected Phlebotomy and drug prescription as OT services. This finding is consistent with a study by Jamnadas et al. [10] where physician assistants and nursing students in the United States selected services that are not traditionally associated with OT as part of OT services. Our finding is also consistent with Meny and Hayat's study [14] where more than half of the participants were of the belief that occupational therapists find jobs for other people. As 66.50% ($n = 137/206$) of final year health science students indicated that they first came across "OT" as a health profession through their university curriculum, it is unclear how their university curriculum enables them to have an overview of OT. It is worth noting that 17.96% ($n = 37/206$) indicated that they first heard about "OT" at the practice setting during clinical placement. Interprofessional education is important towards propagating the unique role of occupational therapists among different health professionals [16-18]. The finding of this study calls for the education of health science students on the unique roles of occupational therapists in the health care team. Interprofessional education and interprofessional collaboration have been identified in the literature as effective ways for health science students to learn about the scope of practice of other health professions and to curb incoordination in healthcare delivery in developing countries [18].

The university curriculum for health science students should be structured in such a way as to allow them to have an overview of the roles of other health professions during their education. In a study by Alotaibi et al. [20], the authors found that a first year shared "Introduction to Professions" enabled health sciences students to have an overview of the scope of practice of other health professions. Furthermore, clinical placements should be scheduled in such a way as to allow health science students to collaborate in the management of patients. This will help facilitate collaboration not only in practice but also academia and research. Finally, OT practitioners and students should endeavour to create awareness on OT scope of practice among their fellow students and health practitioners. Also, sources such as social media, television stations, radio stations, print and electronic media outlets, creating blogs

and other websites can be utilised to propagate the unique roles and goals of the OT profession in Ghana. Even though University of Ghana is the only institution offering an OT accredited undergraduate occupational therapy programme in Ghana and West Africa, program in OT in Ghana and West Africa, the generalizability of this study is limited to health science students at the University of Ghana and does not represent the rest of the Universities in the country. Future research is needed to replicate this study to involve health science students from other tertiary institutions in Ghana including one college offering diploma in OT. Finally, a nationwide study involving many medical, nursing, and allied health professions can bring in valuable information with regards to the awareness and knowledge level of OT among health practitioners.

Conclusion

The study showed that final year students of the College of Health Sciences of the University of Ghana offering Medicine, Nursing, Physiotherapy, Dietetics, Radiography and Medical Laboratory Sciences had high awareness about OT but had an average knowledge about the services rendered by occupational therapists. These findings call for actions to modify the professional curricula of health sciences students to respond to preparing students for practising in a team environment. This invariably might positively affect holistic treatment approach to healthcare delivery in Ghana.

DECLARATIONS

Ethical considerations

The Ethics and Protocol Review Committee of the School of Biomedical and Allied Health sciences gave approval for this study (Ethical clearance number: SBAHS/100410581/AA/OT/2015-2016). Informed consent was also sought from all study participants. Participants were assured of the strict confidentiality and privacy for any information given during the study.

Consent to publish

All authors agreed to the content of the final paper.

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None

Competing interests

No potential conflict of interest was reported by the authors.

Author contributions

ENO contributed to concept and design of the study, data acquisition, analysis, interpretation, including drafting and revising the manuscript. PON contributed to concept and design of the study, analysis, and interpretation including revising the manuscript. Both authors gave final approval of the manuscript submission.

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Availability of data

The dataset used and analyzed during the current study is available from the corresponding author upon a reasonable request.

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